Sustainable Investing Home and Abroad

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Motivation

The proportion of sustainable investing relative to total managed assets has grown strongly around the globe Growth in IO



FIGURE 4 Proportion of sustainable investing assets relative to total managed assets 2014-2020

^{*}Source: Global Sustainable Investment Review 2020

Two aspects of ESG preference

- Two aspects of ESG preference
 - Do investors **invest more** in more sustainable firms? \Rightarrow Market structure

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 - Do investors **invest more** in more sustainable firms? \Rightarrow Market structure
 - Are institutions more patient in more sustainable firms? \Rightarrow International capital flow

Cross-country differences

- · ESG has different marginal effects on firm-level ownership across countries.
- Institutional investors exhibit stronger ESG preference at home than abroad.
- Such 'ESG home bias' varies across institutions of different origins.
- Economic mechanism: ESG preference is stronger in countries with lower ESG information noisiness and higher ESG awareness.

Snapshot of the paper

How does ESG affect institutional investor demand?

- Firm-level institutional ownership (IO):
 - ESG positively predicts firm-level IO across developed markets (DMs) and emerging markets (EMs).
 - Country-by-country double-selection LASSO reveals the heterogeneous marginal effects of ESG on IO across destination countries and investor origination.
- Institution-firm level: how ESG affects portfolio weight.
 - Institutions tilt towards high-ESG firms only at home (ESG home bias).
 - The ESG home bias is strongest for European institutions.

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 - The ESG home bias is strongest for European institutions.

How does ESG affect institutions' rebalancing decisions?

- · Institution-firm level: does good ESG performance mitigate impatience?
 - · Full sample.
 - · During crises.

- Revealed preferences and role of institutional investors: Gompers and Metrick (2001), Ferreira and Matos (2008, 2017), Leuz, Lins, and Warnock (2009), Ferreira et al. (2017), Aggarwal et al. (2011).
 Fund level studies: Lettau, Ludvigson, and Manoel (2018)
- 2. Estimating asset demand: Koijen and Yogo (2019), Koijen, Richmond, and Yogo (2020): portfolios of institutional investors, both within and across groups (e.g., hedge funds, mutual funds) deviate significantly from market weights.
- ESG preferences and role of institutional investors: Liang and Renneboog (2017), Dyck et al. (2019), Krueger, Sautner, and Starks (2020), Chen et al. (2020), Pedersen, Fitzgibbons, and Pomorski (2021), Starks, Venkat, and Zhu (2018), Gibson, Krueger and Mitali (2020), Gibson et al. (2021). Groen-Xu and Zeume (2021).

Data

Do institutions invest more in more sustainable firms?

Firm-level evidence Pooled regressions Marginal effects of ESG by country

Investor-firm level evidence

Are institutions more patient in more sustainable firms?

Full sample period

During crises

Economic mechanism

ESG uncertainty

ESG awareness

Sample: 23 DMs (9,598 firms) and 25 EMs (3,556 firms) 2002-2020.

Ownership

- FactSet: 5,526 institutions, \$39 trillion AUM 2020, filtered à la Camanho, Hau, and Rey, 2021
- Institution by origin: US, UK, European

ESG Ratings

- Refinitiv (A4): 2002-2019
- MSCI: 1999-2019
- Sustainalytics (Sust): 2009-20191

Average standardized ratings per provider-year à la Gibson Brandon, Krueger, and Mitali, 2020:

$$ESG_{i,t} = \frac{1_{MSCI,it} z_t (ESG_{MSCI,it}) + 1_{A4,it} z_t (ESG_{A4,it}) + 1_{Sust,it} z_t (ESG_{Sust,it})}{1_{MSCI,it} + 1_{A4,it} + 1_{Sust,it}}$$

¹We flip the sign of 2019 scores to account for a methodology change.

Sample: 23 DMs (9,598 firms) and 25 EMs (3,556 firms) 2002-2020.

Firm fundamentals

- Datastream/WorldScope
- Size, liquidity, value, momentum, investment, profitability, and other controls.

Country variables

- GDP, Market cap to GDP, openness, legal environment, political risk etc.
- WorldBank WDI and various sources.

Data

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Do institutional investors prefer more sustainable firms?

Firm-level evidence

Does ESG predict investor demand? Firm-level evidence - DMs

Table 1. Pooled regression of ownership for US, UK, and EU institutional investors on firm and country-level ESG variables in DMs. Year FEs are included.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	ious	iouk	ioeu									
ESG	-0.032	0.040	0.039									
	(0.020)	(0.007)	(0.005)									
E				-0.122	0.021	0.021						
				(0.015)	(0.005)	(0.003)						
S							0.044	0.034	0.041			
							(0.016)	(0.006)	(0.004)			
G										0.001	0.022	0.001
										(0.014)	(0.005)	(0.003)
beta	0.059	-0.005	0.006	0.060	-0.006	0.006	0.059	-0.006	0.006	0.059	-0.005	0.006
	(0.005)	(0.002)	(0.001)	(0.005)	(0.002)	(0.001)	(0.005)	(0.002)	(0.001)	(0.005)	(0.002)	(0.001)
logmv	0.024	-0.005	0.009	0.035	-0.004	0.010	0.017	-0.005	0.008	0.021	-0.003	0.012
	(0.003)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)
bm	-0.034	-0.014	-0.006	-0.028	-0.014	-0.006	-0.036	-0.013	-0.005	-0.035	-0.013	-0.005
	(0.007)	(0.002)	(0.001)	(0.007)	(0.002)	(0.001)	(0.008)	(0.002)	(0.001)	(0.008)	(0.002)	(0.001)
epi	-0.005	0.005	0.003	-0.004	0.005	0.003	-0.005	0.005	0.002	-0.005	0.005	0.003
	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
emission	0.137	0.002	-0.020	0.133	0.002	-0.020	0.139	0.002	-0.020	0.138	0.001	-0.021
	(0.003)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)
pollution	-0.029	0.001	-0.006	-0.029	0.000	-0.006	-0.029	0.001	-0.006	-0.029	0.001	-0.006
	(0.002)	(0.000)	(0.001)	(0.002)	(0.000)	(0.001)	(0.002)	(0.000)	(0.001)	(0.002)	(0.000)	(0.001)
Observations	11,280	11,280	11,280	11,255	11,255	11,255	11,255	11,255	11,255	11,280	11,280	11,280
R-squared	0.676	0.115	0.344	0.683	0.112	0.340	0.677	0.115	0.350	0.676	0.112	0.334

Robust standard errors in parentheses

Does ESG predict investor demand? - Firm-level evidence - EMs

Table 2. Pooled regression of ownership for US, UK, and EU institutional investors on firm and country-level ESG variables in EMs. Year FEs are included.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	ious	iouk	ioeu									
ESG	0.049	0.026	0.006									
	(0.013)	(0.006)	(0.005)									
E				0.011	0.011	0.001						
				(0.011)	(0.004)	(0.005)						
S							0.034	0.019	0.001			
							(0.012)	(0.005)	(0.004)			
G										0.052	0.022	0.008
										(0.009)	(0.005)	(0.005)
beta	-0.010	-0.007	-0.004	-0.009	-0.007	-0.004	-0.009	-0.007	-0.004	-0.009	-0.007	-0.004
	(0.006)	(0.002)	(0.003)	(0.006)	(0.002)	(0.003)	(0.006)	(0.002)	(0.003)	(0.006)	(0.002)	(0.003)
loamv	0.004	0.001	-0.000	0.006	0.002	-0.000	0.005	0.002	-0.000	0.005	0.002	-0.000
	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
bm	-0.004	-0.003	-0.001	-0.004	-0.003	-0.001	-0.004	-0.003	-0.001	-0.004	-0.003	-0.001
	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
epi	-0.001	-0.000	0.001	-0.001	-0.000	0.001	-0.001	-0.000	0.001	-0.001	-0.000	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
emission	0.001	0.001	-0.001	-0.000	0.000	-0.001	0.001	0.001	-0.001	0.001	0.001	-0.001
	(0.003)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)
pollution	-0.001	-0.000	0.000	-0.001	-0.000	0.000	-0.001	-0.000	0.000	-0.001	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	(,	(,	(0.000)	(,	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	2.127	2.127	2.127	2.124	2.124	2.124	2.124	2,124	2.124	2.127	2.127	2.127
R-squared	0.070	0.102	0.065	0.050	0.075	0.064	0.063	0.093	0.064	0.080	0.099	0.066
	0.070	002	2.500	2.300	2.370	0.001	2.500	2.500	2.501	2.500	2.500	2.500

Robust standard errors in parentheses

• When investing in DMs, only S matters for US institutional investors.

• When investing in EMs, both S and G matter for US institutional investors.

• When investing in DMs, both E and S matter for European IIs.

• When investing in EMs, European IIs do not have significant ESG preference.

• ESG matters for UK II in both DMs and EMs.

Marginal effect of ESG: Country-level analysis

Rigorous LASSO Belloni, Chernozhukov, and Hansen, 2014:

1. First LASSO:

$$\hat{\beta} = \arg\min_{\beta} \sum_{t=1}^{n} \sum_{t=1}^{T} (IO_{t,t}^{g \in \mathcal{G}} - \sum_{j=1}^{p} x_{t,j,t-1}\beta_j)^2 + \lambda_1 \sum_{j=1}^{p} |\beta_j|\psi_{1,j}$$

 $\lambda_1 > 0$ and $\psi_{1,j}$ are theoretically derived penalty parameters, x_f includes 25 firm-level covariates

 \widehat{l}_1 : set of indices corresponding to the selected factors in step 1.

2. Second LASSO,

$$\widehat{\gamma} = \arg\min_{\gamma} \sum_{t=1}^{n} \sum_{t=1}^{T} (ESG_{t,t} - \sum_{j=1}^{q} x_{t,j,t}\gamma_j)^2 + \lambda_2 \sum_{j=1}^{q} |\gamma_j|\psi_{2,j},$$

 \widehat{l}_2 : set of selected factors in step 2.

3. Post-double-selection estimation LASSO,

$$\widehat{\beta_{esg}} = \arg\min_{\beta_{esg},\beta} \sum_{t=1}^{n} \sum_{t=1}^{T} (IO_{f,t}^{g \in \mathcal{G}} - \beta_{esg} ESG_{f,t-1} - \sum_{j \in \widehat{I}_1 \cup \widehat{I}_2} \beta_j X_{f,j,t-1})^2$$

Marginal effect of E, S, G on US institutional ownership in DMs



Marginal effect of E, S, G on US institutional ownership in EMs



Marginal effect of E, S, G on UK institutional ownership in DMs



Marginal effect of E, S, G on UK institutional ownership in EMs



Marginal effect of E, S, G on European institutional ownership in DMs



Marginal effect of E, S, G on European institutional ownership in EMs



	US		UK		Europe		
Field	DM	EM	DM	EM	DM	EM	
E	4	3	9	5	13	4	
S	12	7	10	7	16	5	
G	7	6	4	4	8	2	

Do institutional investors prefer more sustainable firms?

Investor-firm level evidence

$$W_{i,f,t} = \beta_1 \mathcal{S}_{f,t-1} + \beta_2 \mathcal{S}_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 \mathcal{S}_{f,t-1} \times \mathbb{I}_{EM} + \gamma_f X_{f,t-1} + \underbrace{\gamma_i X_{i,t-1} + \gamma_C X_{C,t-1}}_{\text{or FEs}} + \epsilon_{i,f,t},$$

 $\mathcal{S} \in \{\textit{ESG}, \textit{E}, \textit{S}, \textit{G}\}$

	US		U	K	European		
ESG	0.070	0.096	0.092	0.096	0.968	-0.287	
	(0.049)	(0.052)	(0.045)	(0.046)	(0.089)	(0.079)	
$\mathbb{I}_{DM} \times ESG$	-0.135	-0.157	-0.085	-0.094	-1.026	0.306	
	(0.061)	(0.064)	(0.049)	(0.051)	(0.097)	(0.076)	
$\mathbb{I}_{\textit{EM}} {\times} \texttt{ESG}$	-0.122	-0.155	-0.110	-0.118	-1.914	0.252	
	(0.058)	(0.063)	(0.049)	(0.049)	(0.251)	(0.082)	
Observations	7,723,294	7,024,719	1,251,134	1,165,484	3,042,957	2,820,167	
R-squared	0.457	0.854	0.602	0.849	0.628	0.849	
FIRM FE	Y	Ν	Y	Ν	Y	Ν	
FIRM-INSTITUTION FE	Ν	Y	Ν	Y	Ν	Y	
FIRM CONTROLS	Y	Y	Y	Y	Y	Y	

$$W_{i,f,t} = \beta_1 \mathcal{S}_{f,t-1} + \beta_2 \mathcal{S}_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 \mathcal{S}_{f,t-1} \times \mathbb{I}_{EM} + \gamma_f X_{f,t-1} + \underbrace{\gamma_i X_{i,t-1} + \gamma_C X_{C,t-1}}_{\text{or FEs}} + \epsilon_{i,f,t},$$

 $\mathcal{S} \in \{\textit{ESG}, \textit{E}, \textit{S}, \textit{G}\}$

	US		U	K	European		
E	0.013	0.042	0.054	0.078	0.901	-0.211	
	(0.043)	(0.043)	(0.039)	(0.049)	(0.085)	(0.061)	
$\mathbb{I}_{DM} \times E$	-0.072	-0.097	-0.065	-0.087	-0.962	0.224	
	(0.045)	(0.046)	(0.042)	(0.052)	(0.090)	(0.060)	
$\mathbb{I}_{EM} \times E$	-0.057	-0.091	-0.088	-0.097	-1.512	0.215	
	(0.046)	(0.048)	(0.042)	(0.049)	(0.204)	(0.066)	
Observations	7,714,123	7,016,102	1,249,626	1,164,149	3,040,295	2,817,844	
R-squared	0.457	0.854	0.602	0.849	0.626	0.849	
FIRM FE	Y	Ν	Y	Ν	Y	Ν	
FIRM-INSTITUTION FE	Ν	Y	Ν	Y	Ν	Y	
FIRM CONTROLS	Y	Y	Y	Y	Y	Y	

p<0.01, p<0.05, p<0.1

$$W_{i,f,t} = \beta_1 \mathcal{S}_{f,t-1} + \beta_2 \mathcal{S}_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 \mathcal{S}_{f,t-1} \times \mathbb{I}_{EM} + \gamma_f X_{f,t-1} + \underbrace{\gamma_i X_{i,t-1} + \gamma_C X_{C,t-1}}_{\text{or FEs}} + \epsilon_{i,f,t},$$

 $\mathcal{S} \in \{\textit{ESG}, \textit{E}, \textit{S}, \textit{G}\}$

	US		U	K	European		
S	0.068	0.079	0.075	0.073	0.882	-0.154	
	(0.043)	(0.045)	(0.043)	(0.046)	(0.085)	(0.060)	
$\mathbb{I}_{DM} \times S$	-0.107	-0.121	-0.053	-0.058	-0.943	0.178	
	(0.049)	(0.051)	(0.045)	(0.048)	(0.093)	(0.057)	
$\mathbb{I}_{EM} \times S$	-0.110	-0.125	-0.095	-0.099	-1.479	0.138	
	(0.052)	(0.055)	(0.046)	(0.048)	(0.173)	(0.063)	
Observations	7,713,430	7,015,233	1,249,577	1,164,083	3,040,194	2,817,726	
R-squared	0.457	0.854	0.602	0.847	0.627	0.849	
FIRM FE	Y	Ν	Y	Ν	Y	Ν	
FIRM-INSTITUTION FE	Ν	Y	Ν	Y	Ν	Y	
FIRM CONTROLS	Y	Y	Y	Y	Y	Y	

p<0.01, p<0.05, p<0.1

$$\mathcal{W}_{i,t,t} = \beta_1 \mathcal{S}_{f,t-1} + \beta_2 \mathcal{S}_{t,t-1} \times \mathbb{I}_{DM} + \beta_3 \mathcal{S}_{f,t-1} \times \mathbb{I}_{EM} + \gamma_f X_{f,t-1} + \underbrace{\gamma_i X_{i,t-1} + \gamma_C X_{C,t-1}}_{\text{or FEs}} + \epsilon_{i,f,t},$$

 $\mathcal{S} \in \{\textit{ESG}, \textit{E}, \textit{S}, \textit{G}\}$

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	U	IS	L	IK	Euro	pean
G	0.029	0.037	0.011	0.005	0.953	-0.067
	(0.024)	(0.025)	(0.029)	(0.028)	(0.084)	(0.056)
$\mathbb{I}_{DM} \times \mathbf{G}$	-0.043	-0.046	-0.012	-0.008	-1.025	0.065
	(0.028)	(0.029)	(0.031)	(0.030)	(0.094)	(0.053)
$\mathbb{I}_{EM} \times G$	-0.037	-0.051	0.006	0.001	-1.471	0.027
	(0.032)	(0.034)	(0.033)	(0.032)	(0.161)	(0.056)
Observations	7,723,294	7,024,719	1,251,134	1,165,484	3,042,957	2,820,167
R-squared	0.457	0.854	0.602	0.849	0.627	0.849
FIRM FE	Y	Ν	Y	Ν	Y	Ν
FIRM-INSTITUTION FE	Ν	Y	Ν	Y	Ν	Y
	V	V	V	V	V	V

Data

Do institutions invest more in more sustainable firms?

Firm-level

Pooled regressions

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Full sample

Do investors trade high ESG firms more patiently independent of firm location?

$$\begin{split} \frac{-\Delta \textit{Holdings}_{i,f,t}}{\textit{Holdings}_{i,f,t-1}} &= \beta_1\textit{ESG}_{f,t-1} + \beta_2\textit{ExcessReturn}_{t,t}^- + \beta_3\textit{ESG}_{f,t-1} \times \textit{ExcessReturn}_{t,t}^- \\ &+ \beta_4\textit{ExcessReturn}_{t,t}^- \mathbb{I}_{DM} + \beta_5\textit{ExcessReturn}_{t,t}^- \mathbb{I}_{EM} \\ &+ \beta_6\textit{ESG}_{f,t-1} \times \textit{ExcessReturn}_{t,t}^- \times \mathbb{I}_{DM} + \beta_7\textit{ESG}_{f,t-1} \times \textit{ExcessReturn}_{t,t}^- \times \mathbb{I}_{EM} \\ &+ \gamma_f X_{t,t} + \gamma_C X_{C,t} + \textit{FixedEffects} \end{split}$$

	US		U	ĸ	European	
ExcessReturn [—]	0.011	0.106	0.057	0.038	-0.609	0.210
	(0.056)	(0.057)	(0.151)	(0.160)	(0.132)	(0.176)
ESG	0.126	0.082	0.061	0.106	0.564	0.006
	(0.059)	(0.072)	(0.133)	(0.137)	(0.046)	(0.111)
ESG×ExcessReturn	0.087	-0.071	-0.131	-0.125	1.039	-0.187
	(0.117)	(0.121)	(0.291)	(0.305)	(0.205)	(0.264)
$\mathbb{I}_{DM} \times ExcessReturn^{-}$	-0.499	-0.581	-0.379	-0.321	0.481	-0.397
	(0.092)	(0.093)	(0.159)	(0.167)	(0.130)	(0.176)
$\mathbb{I}_{EM} imes ExcessReturn^{-}$	-0.404	-0.413	-0.700	-0.682	0.104	-0.695
	(0.128)	(0.132)	(0.189)	(0.198)	(0.164)	(0.203)
$\mathbb{I}_{DM} \times ESG \times ExcessReturn^-$	0.437	0.583	0.270	0.211	-0.999	0.281
	(0.173)	(0.176)	(0.303)	(0.317)	(0.205)	(0.269)
$\mathbb{I}_{EM} \times ESG \times ExcessReturn^-$	-0.210	-0.114	0.308	0.350	-1.016	0.217
	(0.221)	(0.236)	(0.349)	(0.364)	(0.262)	(0.312)
Observations	5.158.171	5.094.321	3.670.596	3.651.609	8.117.876	8.056.010
R-squared	0.052	0.154	0.082	0.160	0.060	0.157

Are institutional investors more patient with more sustainable firms?

During crises

1. Selling by foreign institutions during crises for high ESG and Low ESG EM firms

2. Institution-firm level regression around crisis events.



Source: Institute for International Finance, Brooks et al. (April 1, 2020)

Aggregate capital flow by foreign institution group $g \in G = \{US, UK, Europe\}$ into/out of market *m* at quarter *t* as per Camanho, Hau, and Rey (2021):

$$\Delta H_{g,t}^m = \frac{1}{A_{g,t-1}^m} \sum_{i \in g} \Delta h_{i,t}^m \times a_{i,t-1}^m \cdot A_{g,t-1}^m = \sum_{i \in g} a_{i,t-1}^m$$

where

- $a_{i,t-1}^m$: the total dollar value institution *i*'s investment in market $m \in \mathcal{M} = \{DM, EM\}$
- $\Delta h_{i,t}^m$: change in *i*'s weight in market *m* due to rebalancing.

FactSet aggregate rebalancing DM



FactSet aggregate rebalancing EM



Do investors trade high ESG firms more patiently during crises?

 $\frac{-\Delta \textit{Holdings}_{i,t,t}}{\textit{Holdings}_{i,t,t-1}} = \beta_{1}\textit{ESG}_{t,t-1} + \beta_{2}\textit{ExcessReturn}_{t,t}^{-} + \beta_{3}\textit{ESG}_{t,t-1} \times \textit{ExcessReturn}_{t,t}^{-}$

 $+ \beta_4 ExcessReturn_{f,t}^{-} \mathbb{I}_{DM} + \beta_5 ExcessReturn_{f,t}^{-} \mathbb{I}_{EM}$

 $+ \beta_{6} \textit{ESG}_{\textit{f},t-1} \times \textit{ExcessReturn}_{\textit{f},t}^{-} \times \mathbb{I}_{\textit{DM}} + \beta_{7} \textit{ESG}_{\textit{f},t-1} \times \textit{ExcessReturn}_{\textit{f},t}^{-} \times \mathbb{I}_{\textit{EM}}$

 $+ \gamma_f X_{f,t} + \gamma_C X_{C,t} + FixedEffects, t \in \{GFC, Taper, China scare, Covid\}$

	US		U	К	European		
ExcessReturn [—]	-0.204	-0.977	-0.466	0.255	-1.472	0.092	
	(0.409)	(0.533)	(0.711)	(0.700)	(0.534)	(0.900)	
ESG	0.349	0.651	-0.186	-0.695	0.641	0.239	
	(0.277)	(0.398)	(0.397)	(0.486)	(0.156)	(0.429)	
ESG×ExcessReturn ⁻	0.882	2.016	0.844	-0.455	1.957	-0.366	
	(0.771)	(1.000)	(1.265)	(1.299)	(0.825)	(1.375)	
isdm× <i>ExcessReturn</i>	-0.702	0.763	0.336	-0.256	1.196	0.196	
	(0.548)	(0.674)	(0.760)	(0.764)	(0.535)	(0.947)	
isem× <i>ExcessReturn</i>	-0.307	1.512	-1.297	-2.098	0.540	-0.481	
	(0.834)	(0.983)	(0.911)	(0.963)	(0.691)	(1.038)	
isdm×ESG×ExcessReturn	0.497	-1.611	-1.300	-0.055	-1.947	-0.371	
	(0.990)	(1.235)	(1.345)	(1.411)	(0.831)	(1.446)	
isem×ESG×ExcessReturn	-2.276	-4.270	0.780	2.185	-1.476	1.028	
	(1.380)	(1.666)	(1.581)	(1.739)	(1.051)	(1.581)	
Observations	390,805	338,046	306,432	286,392	486,917	429,806	
R-squared	0.078	0.364	0.051	0.325	0.068	0.398	
FIRM FE	Y	N	Y	N	Y	N	

Data

Do institutions invest more in more sustainable firms?

Firm-level

Pooled regressions

Marginal effect of ESG by market

Investor-firm level evidence

Are institutions more patient in more sustainable firms?

Full sample period

During crises

Economic mechanism

ESG uncertainty ESG awareness **Economic mechanism**

ESG uncertainty

ESG Uncertainty

ESG uncertainty measure similar to Avramov et al., 2022

• Pairwise ESG uncertainty as between provider A and B:

$$\sigma_{j,t} = \frac{|z_{j,t,A} - z_{j,t,B}|}{\sqrt{2}}$$

- Firm-level ESG uncertainty: average pairwise ESG uncertainty of available pairs.
- Country-level ESG uncertainty: the average ESG uncertainty across firms.
- Higher ESG uncertainty in EMs.



Economic mechanism

ESG awareness

World Value Survey E and S social norms

- From Dyck et al., 2019.
- Asesses social norms regarding:
 - Environmental activism.
 - Lifestyle liberty, gender equality, personal autonomy, and the voice of the people.



• There is significant home bias in ESG preferences.

• A Post-double-LASSO strategy to account for model selection mistakes that produce a bias due to omitted variables show that E, S, G matter differently across countries and for US and non-US institutions

 Investors behave more patiently toward the high ESG firms in their portfolios. BUT, the decrease of sensitivities of foreign investors' selling after poor stock returns is significantly weaker for EM firms.

Growth of institutional ownership



Institutional investor allocation to investment destinations



Determinants of foreign US institutional ownership DMs



Determinants of foreign US institutional ownership EMs



Determinants of foreign UK institutional ownership in DMs



Determinants of foreign UK institutional ownership in EMs



Determinants of foreign European institutional ownership in DMs



Determinants of foreign European institutional ownership in EMs



Cluster LASSO

Rigorous penalization: control overfitting, guarantee consistent prediction and parameter estimation

$$\lambda = 2c\sqrt{nT}\Phi^{-1}(1-\gamma/(2p))$$

$$c = 1.1, \ \gamma = \frac{0.1}{\log(n)}.$$

Cluster-LASSO is a data-dependent way of choosing the penalty loadings:

$$\psi_j = \sqrt{\frac{1}{nT} \sum_{i=1}^n u_{ij}^2}$$
$$u_{ij} = \sum_{t=1}^T x_{ijt} \epsilon_{it}.$$

An iterative algorithm is used to estimate initial residuals and penalty loading until convergence.